We claim:

1. Process for the catalytic epoxidation of olefins, comprising the steps of: (i) reacting an olefin with hydrogen peroxide in an epoxidation reaction in the presence of a titanium containing zeolite catalyst and a polar solvent to form a reaction product, (ii) recovering a stream comprising the polar solvent from the reaction product of step (i), (iii) treating the stream recovered in step (ii) to contain less than 50 wppm nitrogen in the form of organic nitrogen compounds to obtain a treated stream and (iv) recycling at least part of the treated stream of step (iii) to the epoxidation reaction step (i), wherein one or more nitrogen containing compounds are introduced at some stage of the process.

2. The process of claim 1, wherein the treated stream recycled in step (iv) contains less than 10 wppm nitrogen in the form of organic nitrogen compounds.

3. The process of claim 1, wherein the polar solvent is an alcohol.

4. The process of claim 3, wherein the alcohol is methanol.

5. The process of claim 1, wherein the olefin is propene.

6. The process of claim 1, wherein the titanium containing zeolite catalyst is a titanium silicalite with MFI or MEL structure.

7. The process of claim 1, wherein the epoxidation reaction of step (i) is conducted in the presence of 100 to 3000 ppm ammonia based on the weight of hydrogen peroxide.

8. The process of claim 7, wherein the epoxidation reaction is conducted in the presence of 300 to 2000 ppm ammonia based on the weight of hydrogen peroxide.

9. The process of claim 1, wherein the stream in step (iii) is treated with an acid treatment.

10. The process of claim 9, wherein the acid treatment comprises:

a) adding an acid to the stream recovered in step (ii);

b) subjecting the reaction product of step a) to distillation and

c) withdrawing a distillate comprising the polar solvent and containing less than 50 wppm nitrogen in the form of organic nitrogen compounds.

11. The process of claim 10, wherein the acid is a mineral acid.

12. The process of claim 11, wherein the mineral acid is selected from the group consisting of sulfuric acid and phosphoric acid.

13. The process of claim 10, wherein the acid is a carboxylic acid.

14. The process of claim 13, wherein the carboxylic acid is acetic acid.

15. The process of claim 9, wherein the acid treatment comprises:

a) subjecting the stream recovered in step (ii) to a continuously operated distillation;

b) feeding a stream comprising an acid at a point above a feed point of the stream recovered in step (ii) and

c) withdrawing a product stream comprising the polar solvent and containing less than 50 wppm nitrogen in the form of organic nitrogen compounds at a point above a feed point of the acid comprising stream.

16. The process of claim 15, wherein the acid is a mineral acid.

17. The process of claim 16, wherein the mineral acid is selected from the group consisting of sulfuric acid and phosphoric acid.

18. The process of claim 15, wherein the acid is a carboxylic acid.

19. The process of claim 18, wherein the carboxylic acid is acetic acid.

20. The process of claim 9, wherein the acid treatment comprises treating the stream recovered in step (ii) with an acidic ion exchanger in its protonated form.

21. The process of claim 20, wherein the stream recovered in step (ii) is passed through a fixed bed containing the acidic ion exchanger.

22. The process of claim 20, wherein the acidic ion exchanger is a strongly acidic ion exchanger.

23. The process of claim 22, wherein the strongly acidic ion exchanger contains SO_3H groups.

24. The process of claim 20, wherein the acidic ion exchanger is a weakly acidic ion exchanger.

25. The process of claim 24, wherein the weakly acidic ion exchanger contains COOH groups.

26. The process of claim 1, wherein the nitrogen containing compound is present in step (i) by being contained in at least one of the olefins, hydrogen peroxide, and polar solvent.

27. The process of claim 1, wherein the nitrogen containing compound is added to the epoxidation reaction.

28. The process of claim 1, wherein the nitrogen containing compound is added in step (ii).

29. The process of claim 1, wherein the nitrogen containing compound is introduced during at least one of steps (i) to (iii) or between any two of such steps.

30. Process for the catalytic epoxidation of propene, comprising

a) in a reaction step reacting propene with hydrogen peroxide in the presence of a titanium silicalite catalyst and a solvent comprising methanol to obtain a product stream,

b) optionally passing the product stream from the reaction step to a pressure release step,

c) separating the product stream in a pre-evaporator having less than 20 theoretical separation stages into an overhead product containing propene, propene oxide and methanol, and into a bottom product containing methanol and water, removing 20 to 60% of the total amount of methanol introduced with the product stream with the overhead product and the rest remaining in the bottom product,

d) treating all or a part of the bottom product from step c) to contain less than 50 wppm nitrogen in the form of organic nitrogen compounds and, optionally after partially removing water,

e) recycling all or a part of the treated product from step d) to the reaction step a).

wherein one or more nitrogen containing compounds are introduced at some stage of the process

31. The process of claim 30, wherein the treating in step d) is an acid treatment.

32. The process of claim 31, wherein the acid treatment comprises:

(i) adding an acid to the stream recovered in step c);

(ii) subjecting the reaction mixture of step (i) to distillation; and,

(iii) withdrawing a distillate comprising the solvent and containing less than 50 wppm nitrogen in the form of organic nitrogen compounds.

33. The process of claim 32, wherein the acid is a mineral acid.

34. The process of claim 33, wherein the mineral acid is selected from the group consisting of sulfuric acid and phosphoric acid.

35. The process of claim 32, wherein the acid is a carboxylic acid.

36. The process of claim 35, wherein the carboxylic acid is acetic acid.

37. The process of claim 31, wherein the acid treatment comprises:

(i) subjecting stream recovered in step c) to a continuously operated distillation;

(ii) feeding a stream comprising an acid at a point above a feed point of the stream recovered in step c) and

(iii) withdrawing a product stream comprising the polar solvent and containing less than 50 wppm nitrogen in the form of organic nitrogen compounds at a point above a feed point of the stream comprising an acid.

38. The process of claim 37, wherein the acid is a mineral acid.

39. The process of claim 38, wherein the mineral acid is selected from the group consisting of sulfuric acid and phosphoric acid.

40. The process of claim 37, wherein the acid is a carboxylic acid.

41. The process of claim 40, wherein the carboxylic acid is acetic acid.

42. The process of claim 31 wherein the acid treatment comprises treating the stream recovered in step c) with an acidic ion exchanger in its protonated form

43. The process of claim 42, wherein the stream recovered in step c) is passed through a fixed bed containing the acidic ion exchanger.

44. The process of claim 42, wherein the acidic ion exchanger is a strongly acidic ion exchanger.

45. The process of claim 44, wherein the strongly acidic ion exchanger contains SO_3H groups.

46. The process of claim 42, wherein the acidic ion exchanger is a weakly acidic ion exchanger.

47. The process of claim 46, wherein the weakly acidic ion exchanger contains COOH groups.

48. The process of claim 30 further comprising:

f) at least partially condensing the overhead product from step c) to obtain a condensate containing, optionally after stripping out propene and any propane present

0	-	12	wt.% propene,
0	-	5	wt.% propane,
15	-	75	wt.% propene oxide,
20	-	85	wt.% methanol and
0	-	8	wt.% water,

g) subjecting said condensate to an extractive distillation, by

g1) adding said condensate to a middle section of an extractive distillation column,

g2) adding an aqueous extraction solvent to the extractive distillation column at a point above a point at which the condensate enters,

g3) distilling off the propene oxide at head of the column,

g4) removing a bottom product containing methanol and water, and

h) combining the bottom product from step c) with the bottom product from step g4) before subjecting it to step d).

49. The process of claim 48, wherein the extraction solvent in step g2) is an aqueous hydrazine solution containing from 0.5 to 5% by weight hydrazine.

50. The process of claim 30 further comprising in step d) subjecting the bottom product of step c) to hydrogenation before subjecting it to the treatment to remove organic nitrogen compounds.

51. The process of claim 48 further comprising in step d) subjecting the combined product of the bottom product of step c) and the product of step g4) to hydrogenation before subjecting it to the treatment to remove organic nitrogen compounds.

52. Process for the catalytic epoxidation of propene, wherein one or more nitrogen containing compounds are present or are introduced at some stage during the process, said process comprising:

a) in a reaction step reacting propene with hydrogen peroxide in the presence of a titanium silicalite catalyst and a solvent comprising methanol to obtain a product stream,

b) optionally passing the product stream from the reaction step to a pressure release step,

c) separating the product stream in a pre-evaporator having less than 20 theoretical separation stages into an overhead product containing propene, propene oxide and methanol, and into a bottom product containing methanol and water, wherein 20 to 60% of the total amount of methanol introduced with the product stream is being removed with the overhead product and the rest remaining in the bottom product,

d) treating at least a part of the bottom product from step c) to obtain a product containing less than 50 wppm nitrogen in the form of organic nitrogen compounds and, optionally after partially removing water from said treated product.

e) recycling at least a part of the treated product from step d) to the reaction step a).